WHAT IS CLAIMED IS

1. A method for sensing isolation faults in a system including a direct-voltage power supply, which direct-voltage power supply nominally floats relative to a reference conductor, and in which the system also includes a load, a first terminal of which load is connected to a first terminal of said direct voltage power supply, said method comprising the steps of:

coupling to a node, by a resistive coupling path having an equivalent resistance, a fixed proportion of the direct voltage of said direct-voltage power supply, said node being connected by a measuring path to said reference conductor;

measuring a first current flowing in said measuring path at a first time;

measuring a first voltage applied to said load at said first time;

measuring a second current flowing in said measuring path at a second time different from said first time;

measuring a second voltage applied to said load at said second time;

at a time between said first and second times, coupling a second terminal of said direct-voltage power supply to a second terminal of said load, for energization thereof; and

determining, from said equivalent resistance, and said first and second voltages and currents, at least one

of fault voltage and resistance.

2. A method according to claim 1, wherein said step of determining said fault resistance R_{fault} is performed by

$$R_{fault} = \frac{V_{link2} - V_{link1}}{2\left(Ig_{f1} - Ig_{f2}\right)} - \frac{Rg}{2} \qquad (1)$$

where:

V_{link1} is the voltage at load at said first time;

V_{link2} is the voltage at said load at said second time;

Ig_{f1} is the current in said measurement path at said first time;

Ig_{f2} is the current in said measurement path at said second time; and

Rg is said equivalent resistance.

3. A method according to claim 1, wherein said step of determining said fault voltage V_{fault} is established by

$$V_{fault} = \frac{V_{link2} Ig_{f1} - V_{link1} Ig_{f2}}{2\left(Ig_{f1} - Ig_{f2}\right)} \qquad (2)$$

where:

V_{link1} is the voltage at said load at said first time;

V_{link2} is the voltage at said load at said second time;

Ig_{f1} is the current in said measurement path at said first time;

Ig_{f2} is the current in said measurement path at said second time; and

Rg is said equivalent resistance.

4. A method according to claim 1, wherein said steps of measuring a first voltage at said load, and measuring a second voltage at said load, are performed by measuring voltage across said load.

5. A method according to claim 3, wherein the voltage Vfault is referenced to the negative terminal of the load.